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ABSTRACT

Global inflation should be viewed more as a sympton of social problems than as an economic disease that can be cured by monetary and fiscal policy. Social problems signaled by inflation include exploding demand, rising costs for essential commodities, stagnating productivity, and a decline in the real standard of living. Inflation is interpreted as an increase in the overall level of nominal prices in the whole economy. It is significant to note, however, that crucial determinants of well being are often more closely related to prices of particular goods and services than to changes in the general price level. Circumstances which have contributed to global inflation include rising energy prices, increased government spending, increased money supplies, and lack of wage and price controls in capitalist nations. New sources of higher prices include increasing energy and food production costs, depleted resources, and a dearth of tillable land. Governments will make progress toward controlling global inflation if they aim economic policies toward increasing supply and reducing demand, stabilizing population, encouraging conservation and recycling, changing working conditions to boost productivity, increasing opportunities for competition, and striving to provide for basic human needs in a setting of economic stability. (DB)

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Inflation: The Rising Cost of Living on a Small Planet

Robert Fuller

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Introduction

The invention of money was surely one of the most momentous innovations in history. It belongs in the company of fundamental developments that have created and shaped human civilization: innovations such as writing, tools, trade, agriculture, and the domestication of animals. Yet there are two sides to every coin. Along with the advantages of money come unexpected problems created by its misuse or mismanagement. Inflation is one such unanticipated phenomenon that has recurred throughout history, on occasion playing a major role in the destruction of societies.

Plato and Aristotle argued over ways to avoid inflation around 350 B.C. The arguments have continued to the present day, until they fill the pages of newspapers and journals, of popular as well as scholarly books. Although there have been inflationary periods throughout history, the current inflation is the first that is truly worldwide.[1] It has coincided with global economic interdependence and a sudden awareness of the fragility and finitude of the planet and its resources. As the world has "shrunk," so has the buying power of its currencies.

The current global inflation is less an economic disease that can be cured by the clever use of monetary and fiscal policy than it is a symptom of deeper problems that desperately need attention. The phenomenon of global inflation carries a grave message of utmost importance to humanity. The world is faced with exploding demand, rising cost curves for essential commodities, stagnating productivity, and a leveling off—if not an actual decline—in the real standard of living.

Examining inflation in this global context, it is possible to identify some historically new biological, physical, and sociopolitical pressures that are contributing to rising prices the world over. Yet their relationship to the phenomenon of inflation is not as simple as it might

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appear, since rising prices of individual commodities do not necessarily cause inflation. The case *can* be made, however, that in the circumstances of today's world, rising costs of particular commodities put upward pressure on the prices of almost everything else, and
6 thus do contribute to inflation. Rising prices, unwelcome as they are, at the same time are signals bearing vital information. It is important to track down the sources of these signals, rising as they now are in crescendo, to decipher their meaning, and to set forth their implications for economic policy.

What Inflation Is and Is Not

During the seventies, inflation became a worldwide phenomenon. (See Table 1.) It is now persistent and substantial in most parts of the globe. Not even the centrally planned economies, where prices are set by fiat, have been free of it. Estimates set Soviet inflation at about 5 percent per year during the first half of the seventies. There are numerous signs that since then it has increased both in the USSR and in Eastern Europe. Bulgaria, for example, has recently decreed 30 to 40 percent price increases on a wide range of goods and services, including basic foodstuffs. And in China, there has just been an "upward adjustment" of as much as 33 percent in the prices of many foods.[2]

A look at the U.S. Consumer Price Index (CPI) over the last 180 years shows that, historically, inflation and wars have gone hand in hand. (See Figure 1, pages 24-25.) Prior to World War II, inflationary periods did not outlast wartime by much—inflations brought by wars were followed by compensatory deflations. The steady rise in the CPI since World War II, and the steep acceleration after the Vietnam War, indicate that the old rules have changed. Inflation in the United States, as in the rest of the world, appears to be chronic and accelerating, persisting in the face of all attempted remedies.

Even in a barter economy, relative "prices" of various goods change. For example, in certain recently deforested parts of India, one load of firewood might have been traded for one sack of rice ten years ago,

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Table 1: Average Annual Rate of Change of Consumer Prices, Selected Countries, 1930-79

Country	1950-60	1960-70	1970-78	1979*
		(percent)		
Argentina	25.0	23.0	117.2	140
Australia	2.8	2.5	10.6	8
Brazil	—	45.0	28.3	52
Canada	1.2	2.7	7.6	9
Egypt	−0.6	3.7	7.9	10
France	3.4	4.1	9.0	12
India	2.3	6.4	7.4	10
Indonesia	—	—	17.0	20
Israel	8.4	5.6	29.4	93
Japan	2.7	5.9	9.8	8
Kenya	—	1.6	12.3	25
Malaysia	−1.4	1.1	6.1	5
Mexico	6.0	2.8	15.1	19
Nigeria	4.1	2.8	9.7	30
Saudi Arabia	—	1.7	14.7	15
Sweden	3.0	4.1	8.9	8
United Kingdom	2.4	4.0	13.2	16
United States	1.4	2.8	6.7	13
West Germany	1.1	2.6	5.2	5
Yugoslavia	5.0	12.4	17.0	24

*Preliminary estimates by Worldwatch Institute, based on IMF data and current periodicals.
Source: International Monetary Fund.

but for two sacks today. The relative "price" of firewood in terms of rice has doubled as firewood has become scarcer.

The relative prices of goods change all the time—in a money economy or a barter economy—as functions of supply and demand. Sometimes changes like these are referred to as instances of inflation: in the above example, some might say that "firewood prices inflated 100 percent." But this is a confusing use of the word. The inflation rate in an economy is rather the rate at which the *general level of prices* in that

economy is changing. In order to calculate this general price level, a money economy is necessary. Then the total cost of a representative bundle of goods and services can be determined. The resulting number is the CPI and it provides a quantitative measure of inflation. The percentage change in the CPI may be taken as the rate of inflation over a given time interval.

Two hundred years ago, philosopher David Hume imagined that the quantity of money in an economy is doubled at the same time that all prices, rents, wages, and so on are doubled. He pointed out that no one's buying power or real wealth would change. This is an example of pure inflation, a 100 percent inflation. In this example no one suffers any real economic loss: there is merely the inconvenience of learning to live with a new set of prices. In the real world, the situation is enormously more complex, for relative price changes are occurring continually, and on top of that the general price level may be rising (inflation) or falling (deflation).[3]

The world "inflation" applies to the economy as a whole, just as the inflation of a balloon affects its overall size. It is an increase in the overall level of nominal prices, or of the nominal cost of living. Put another way, inflation is a reduction in purchasing power of a nominal amount of money. Usually the word "inflation" is reserved for a significant and prolonged increase in the general price level. As Hume's example shows, people do not necessarily suffer in terms of real wealth or buying power—they don't if everyone's income and assets rise proportionally and in step with the price level (for example, in economic terminology, if all are fully "indexed"). But such a situation is rare, if not nonexistent, in the real world. The constant shifting of relative prices in the presence of inflation (or deflation) typically makes some people poorer and others richer in terms of their buying power.

Independent of general inflation, certain relative price changes can and often do present a serious threat to individuals as well as to whole segments of society. If a family must spend almost all its money on food to survive, and if the prices of all foods double relative to other things, then this family would soon starve. It is of little comfort to such a family that the prices of other goods might have fallen in such a way as to keep the general price level constant.

The cost of producing food depends on a variety of meteorological, physical, and biological influences that together with the number of mouths to feed—the demand—determine the price. Too many people competing for too little food results in the price being forced up until those who can't pay it "leave the market." The culprit in many situations is not inflation itself, but rather fundamental real factors such as the quality of soils and seeds, the amount of rainfall, the quality of labor, and the population of consumers.

The crucial determinants of human well-being are thus often unrelated to any changes in the *general* price level. They lie rather in the prices of particular goods and services and how these are changing relative to other prices and incomes, and by how much. To take an extreme but instructive example, if you are diabetic and the price of insulin goes up so much that you can't afford enough, you die: no substitution is possible. This is not very different from the situation in which approximately one-fourth of the world's people find themselves when it comes to the necessities of life such as food. If little substitution is possible, when food prices rise faster than the general price level and incomes parallel or lag behind any increases in the general price level, people suffer and sometimes even die. The critical matter is not the overall level of inflation. It could even be zero—that is, no rise in the *general* price level—yet without enough insulin, or without enough food, people perish.

Inflation's Damages

Inflation, like disease, has no defenders. Almost all, rich and poor, employees and employers, believe they are hurt by inflation. Leaders of nations proclaim it to be public enemy number one and make its control their top domestic priority. Mark Twain's complaint that "Everyone talks about the weather, but nobody does anything about it" might nowadays be applied to inflation. Inflation has become our favorite menace.

There have been many studies of who wins and who loses during an inflation. Set against the high level of public concern about the topic, their findings are at first surprising: in developed economies, financial harm due specifically to inflation is not that easy to find. In the United States, most people's incomes have been rising faster than the general

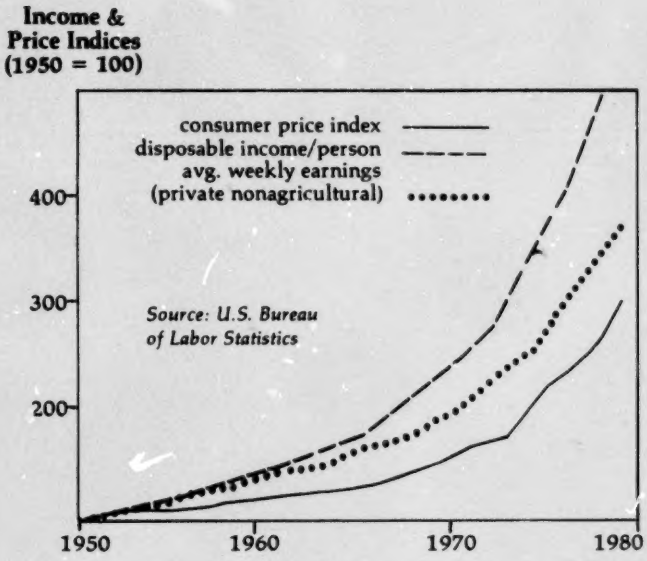

Figure 2: U.S. Income and Price Indices, 1950-79

price level. (See Figure 2.) The classic case of the widow living off her meager savings is instructive. If she does indeed live on a fixed amount of money drawn out from "under the mattress," then her purchasing power declines, perhaps dangerously, with inflation. But if she lives on social security—like retirees in many countries—then typically these benefits have been raised over the years to cover increases in the cost of living. Increasingly, countries are "indexing" these governmental payments directly to the consumer price index, so cost-of-living increases are automatically covered by proportionately rising benefits each year.

Social security payments are just one type of income that has been "indexed" to help people keep abreast of rising consumer prices. In

"Inflation imposes a kind of lottery on everyone, redistributing rewards and penalties rather arbitrarily, and often inequitably."

general, both employers and employees assume that incomes must at least "keep up with inflation." So-called escalator clauses, which peg current wage rates to the CPI, are becoming common features of labor contracts in developed economies. The curious result is that a good many people who think they are hurt by inflation are in fact being insulated from its effects.

A closer look at the situation provides general quantitative support to this first, approximate picture, but begins to modify it in some significant ways. Joseph Minarik, a research associate in the Brookings Economic Studies Program, has used computer simulations to show the effects of inflation on the different income classes in the United States. He finds that in contemporary American society, those in the upper income brackets are, *as a class*, inflation's only significant losers. This does not mean that *some* rich people don't get richer or that *some* poor people don't get poorer when there is an inflation. But Minarik's study contradicts two widespread beliefs about the overall effects of inflation: that almost everyone is hurt financially by it, and that it makes the rich richer and the poor poorer.[4]

Inflation's redistributive effects do not primarily transfer wealth either from rich to poor or from poor to rich. Rather, inflation imposes a kind of lottery on everyone, redistributing rewards and penalties rather arbitrarily, and often inequitably. The redistribution may reward shrewd speculation, but it does not necessarily reward hard work or honor reasonable and justified expectations. Thus, although little income is distributed across *class* lines, many individuals may be harmed. Clearly, creditors are in general harmed, and debtors benefit. To the extent that the rich are creditors and the poor are debtors, Minarik's conclusion that inflation redistributes income away from the rich seems less surprising. Retirees on pensions that are unindexed—and 96 percent of private pensions in the United States do not contain automatic cost-of-living escalator clauses—find the retirement income they have been promised and that they depend on seriously eroded year after year.[5]

Inflation is felt to breach the social contract; it destroys trust in the economy and in government. One reason for this is that government itself is one of the main financial beneficiaries of inflation. Any country with a graduated income tax automatically collects more money

from its taxpayers as inflation pushes their incomes into higher tax brackets. Thus without taking the political risk of legislating higher taxes, governments can nevertheless collect and spend them. Governments, or at least their treasuries, are thus one of inflation's winners.

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Even in situations where income is increased to compensate for overall inflationary erosion, there can still be great suffering if price increases in a crucial sector of the economy are leading the general inflation rate. Consider the hypothetical example of a poor family that spends 90 percent of its income on food and shelter. If the price of food doubles, then this family faces starvation.[6]

In point of fact, price increases in the basic necessities of life have outstripped general inflationary increases in many countries. The "hypothetical" example above is the everyday reality for millions of people the world over. Peru provides a striking case in point. In the last four years, workers' real buying power has been cut in half. The price of bread has jumped tenfold. Per capita caloric and protein intake are but two-thirds of those listed by the U.N. Food and Agriculture Organization as the recommended minimum. The number of infants in Lima who die during their first year has gone up by an estimated 30 percent according to an observer. During a recent teachers' strike, the instructors stressed that they could not teach students who were on the border of starvation.[7]

The current situation in Ghana provides another example, one that illustrates the potentially disastrous chain of events that can result from inflation, once it gets rolling. In Accra, the impoverished majority spend about one-quarter of their daily wages just getting to and from work. They must spend three days' wages for a kilo of meat, and one day's wages for a tin of condensed milk or a kilo of fish or poultry. Even on the rare occasions when they are available, sugar, flour, tinned fish, and soap are beyond an unskilled worker's income. During the seventies, the price of food in Ghana rose 40 percent more than the general price level did.[8]

It is in the countryside, however, that the lethal consequences begin to unfold. It is there that farmers produce cocoa, the single commodity that provides two-thirds of Ghana's foreign exchange and that is the major income source of small farmers. The world price of cocoa

is not keeping pace with the domestic inflation. Therefore, the cocoa farmers' incomes are falling in real terms. They are being forced to cut down their cocoa trees, along with the forest cover that the cocoa bushes require, in order to plant the food crops that they can no longer afford to buy.

The widespread cutting down of forest cover along with the cocoa trees could lead to an ecological as well as an economic catastrophe in Ghana. It takes 20 years for a cocoa tree to reach the point of highest productivity. The shade canopy necessary to cocoa growing takes about the same period to grow. Without the trees, the topsoil will be washed away or depleted. Within ten years, some of Ghana's most productive agricultural land could become clay.[9]

The World Food Council has warned that the world will probably be hit by a food crisis in the early eighties. The less developed nations, of which Peru and Ghana are examples, will suffer grievously if shortages occur in world markets and prices rise any further. The hypothetical case of a family earning less than it needs to stay alive would then become the rule. The people of many countries are living their lives with such a thin margin for survival that rises either in the general price level or in the price of certain basic necessities can endanger them.

Although situations as grim as these in the Third World are virtually nonexistent in the developed countries, nonetheless there is financial hardship caused by some rising prices that remain undercompensated because income adjustments are geared to the CPI. For many countries, it is difficult to obtain pricing data on "necessities" other than food, such as energy, housing, and medical care. The situation in the United States, however, illustrates the consequences of this sectorial inflation, bearing in mind that the absolute level of hardship varies enormously from country to country. The annual sectorial rates of inflation in the United States for some basic necessities—food and energy, housing and health care—between 1950 and 1979 can be compared with the rise in the CPI.[10] (See Figures 3 and 4.) Over these three decades the CPI has increased from a value of 100 (arbitrarily chosen as a base) in 1950 to an estimated value of about 300 in 1979—an average gain of almost 4 percent per year.

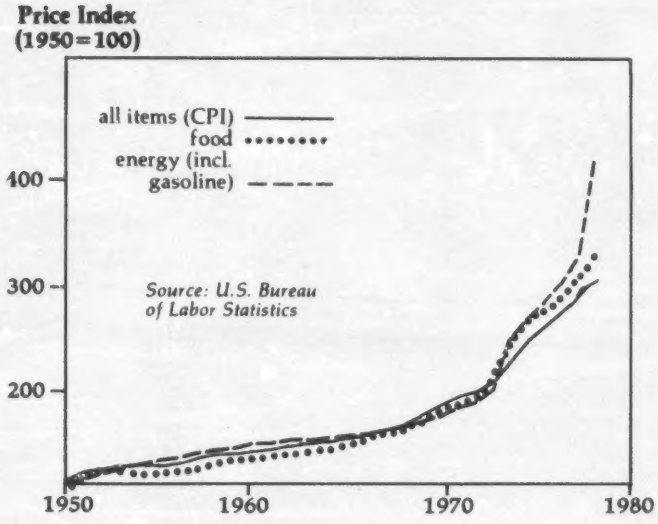

Figure 3: U.S. Consumer Price Indices, Food and Energy, 1950-79

Since 1972, food prices in the United States have run about 5 percent over the CPI. That year, the United States sold most of its exportable wheat surplus to the Russians; bad harvests abroad over the next two years then led to heavy demands on U.S. crops, driving up the price of food everywhere. Although the rate of increase in food prices has exceeded that of the CPI only slightly, it has been enough to produce a noticeable pinch for those in whose budgets food is the dominant item.

The steep relative increases in energy prices that followed the price rises by the Organization of Petroleum Exporting Countries (OPEC)

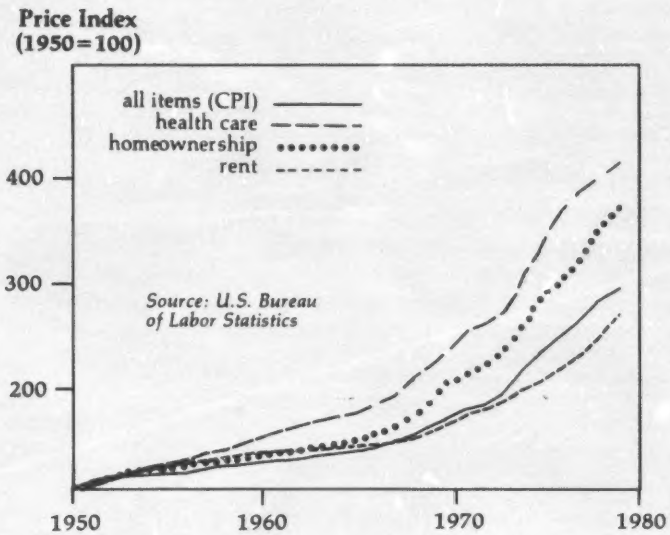

Figure 4: U.S. Consumer Price Indices, Health Care and Housing, 1950-79

in 1973 are evident, as is the second "shock" to oil prices associated with the Iranian revolution in early 1979. From 1974 through 1979, energy prices increased by about 75 percent, compared to the 48 percent increase in the CPI. The costs of homeownership and health care have run consistently well ahead of the CPI during most of the postwar period; by 1978, they were 25 percent and 50 percent above the CPI, respectively. Rents, on the other hand, increased less rapidly than the CPI during the seventies.

It is difficult to generalize about the effects of inflation on "typical" families as every family spends its money on a different bundle of

goods and as incomes, savings, investments, and taxes all vary considerably. The CPI is calculated on the basis of the cost of a particular sample of goods thought to reflect the purchases of a typical family. But a family with larger-than-typical expenditures for energy, say, or for medical care will be squeezed so long as those sectorial prices increase faster than the general price level and than the family's income. Likewise, homeownership moves out of range for those without the requisite equity as its costs increase more rapidly than the general trend in prices and incomes.

Another damaging aspect of rising prices is that incomes, even if they follow the increases in the CPI, rise in steps, often only at the end of the year. Prices, in contrast, rise continually throughout the year. In this way, pressure builds up over the months as the price level climbs ahead of income levels. Whenever inflation lurches ahead to an unanticipated, higher level it puts an immediate—albeit, temporary, if incomes are indexed—squeeze on people's purses. This occurred in the United States in 1979. Despite wage increases averaging over 7 percent, inflation, running around 13 percent, cut the buying power of private-sector workers by more than $1 a day over the year. Social security recipients lost over $300 in real buying power over 12 months before their benefits were increased by about 10 percent in mid-1979 to compensate for inflation—which is once again creeping ahead of their current incomes.[11]

The consumer tries to stay afloat in a shifting, rising sea of prices. The "sailor" must beware the shifting currents of changing relative prices while floating ever upwards in the general inflation. And as every sailor knows, it is the currents that generally pose the greater danger.

Beyond actual *economic* losses attributable to inflation and rising sectorial prices, there are also psychological losses. Even in a system that provided complete and perfect protection against all the economic consequences, people would still object to inflation, if for no other reason than that stable reliable prices offer a kind of security. The passing of the 10¢ cup of coffee feels like the death of an old friend.

Also, when people's nominal income goes up, they expect to live better, rather than staying even or improving only fractionally. If

"Inflation that feeds on itself and finally spirals out of control is in the back of everyone's mind."

their income goes up 12 percent, they feel cheated if they can live only 3 percent better than before. They often feel not 3 percent richer, but 9 percent poorer!

There is something ominous about unstable prices. Will they spiral out of control? Are they harbingers of societal collapse? The hyperinflation in Germany in 1923 saw prices increase to a trillion times their 1914 values, shattering the framework of numerical stability and measurement that is so important to the maintenance of rationality in society. Thomas Mann described the experience: "Inflation is a tragedy that makes a whole people cynical, hardhearted, and indifferent. Having been robbed, the Germans became a nation of robbers." Stefan Zweig put it like this: "Nothing made the German people so embittered, so raging with hatred, so ripe for Hitler, as the Inflation."[12] The current runaway price rises in both Argentina and Israel approach the level of hyperinflation.

The fear of hyperinflation explains a good part of the anxiety over inflation itself. The precise "runaway point" is unknown, but once beyond it, the disintegration of society is the likely outcome. Inflation that feeds on itself and finally spirals out of control is in the back of everyone's mind. When the dollar depreciates, OPEC countries raise the price of oil to compensate. This accelerates inflation and worsens the U.S. trade deficit. Consequently the dollar declines further in currency exchange markets and the inflationary spiral grows. Where it stops, nobody knows.

A less catastrophic, but nonetheless pernicious, effect of inflation has been pointed out by Friedrich von Hayek, and elaborated upon by Milton Friedman and others.[13] Whereas it is relatively easy to extract information about relative prices when the general price level is stable, the more volatile the rate of general inflation, the harder this becomes: the broadcast about relative prices is jammed by the background noise coming from inflation. Because individual and corporate economic choices are guided by relative prices, the entire market system is rendered less efficient as a transmitter of the economic information needed to guide production and consumption decisions. The loss to society in economic productivity cannot be measured, but is undoubtedly significant.

Another potentially serious long-term consequence of inflation is its effect on investments in general and on research and development in particular. To the extent that saving is discouraged by inflation, there is less money available for investments of all kinds. This will invariably harm productivity in the long run, which will further exacerbate inflation. Research thus must vie for financial resources with the promise that future payoffs will exceed present investments. But the costs of conducting modern research are rising at about twice the inflation rate. A study of the global research and development budget found that "high levels of inflation and economic uncertainty are steering corporations away from exploratory R&D likely to have its payoff only in the long term, and towards activities designed to maximize short-term profits."[14] The effect of such practices on productivity and long-term growth can only be deleterious. Once a society's scientific cutting edge has been blunted, it is very hard to resharpen it.

The consequences of continuing on the current path are indeed cause for grave concern. Not only are individuals subjected to continual anxiety and random economic harm, but society as a whole is a loser. Trust in governments diminishes; social values are eroded along with the value of the currency. Economic information required for intelligent decision-making is muddied and lost. Investments and fundamental research and development all suffer, diminishing a society's capacity to renew itself. Inflation is one of those symptoms that, left unheeded, just gets worse and worse until it finally commands our attention and compels us to examine, and then change, our ways.

The Circumstances of Today's Inflation

Today's global inflation is not so much a phenomenon deriving from some sufficient "cause" as a process arising within a concatenation of circumstances. What are these circumstances? How do they account for the fact that the prices of everything seem to move only in one direction—upwards? In principle, relative prices could change, reflecting real changes in supply and demand, and the general price level still remain the same. But if rising prices in some areas are offset

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by falling prices in other areas, the income of the producers and sellers of these products will be reduced. Unless the falling prices are due to productivity gains, one group's gain becomes another's loss.

But what happens if, in order to protect their incomes, those who would lose somehow manage not to lower their prices? Then all the adjustment in relative prices must be made via upward price shifts, and an increase in the general price level—that is, inflation—results. For example, in a simple economy—one with just two items, A and B, priced at $1.00 and $2.00 respectively—a relative price shift might occur as follows: A's price could drop 25¢ and B's rise 25¢, changing the relative prices of B to A from two to one to three to one ($2.25 to 75¢). On the other hand, if A's price is to remain at $1.00, then B's will have to climb to $3.00 if their relative prices are to reach the three-to-one ratio. In the first case, the total expenditure for A plus B would be $3.00, both before and after the price change. In the second case, the total expenditure after the relative price change would be $4.00, signifying a 33 percent "inflation." Of course, to accommodate this sort of adjustment, the money supply has to be expanded commensurately.

That is what is happening in most of the world's economies today. Take a specific group of commodities, such as energy, and trace the consequences of a price increase through an economic system. In the United States, direct and indirect uses of energy account for about 10 percent of all spending on consumption.[15] Therefore, a 60 percent rise in the price of energy—which was approximately the increase in 1979—would tend to cause a 6 percent rate of inflation all by itself. In order to maintain overall price stability under these circumstances, the price of the other 90 percent of consumption would have to fall by an average of almost 7 percent. The extra money spent on energy would not be available for other things, consumption of them would have to be curtailed, and the incomes of those producing these goods and services would have to drop. A commitment to overall price stability, that is, to zero inflation, would thus require that the money incomes of many be cut. Although this reduction could in principle be shared widely, in practice it would be borne mainly by people who lose their jobs. This is an example of the infamous "Phillips" tradeoff between inflation and unemployment that has influenced economic policy so much during recent years.

In summary, when any cost rises—when OPEC raises the price of oil, or when workers get a wage increase that exceeds their productivity increase—a complex choice is presented: Expenditures on the more costly item can be curtailed; the higher cost can be absorbed by curtailing expenditure elsewhere, thus reducing others' incomes; or the unabsorbed price increase can be passed around by raising everyone's money income to pay for it. This last response is the inflationary one. It requires the collusion, conscious or not, of a great many players in the economic game. Under current circumstances, in which societies are reluctant to actually reduce the money incomes of their citizens, real increases in the wealth of some (for example, oil producers) are accommodated by making everyone's "dollar" worth a little less. In this way, inflation distributes the increased costs over the whole society without some people suffering ignominious reductions of their nominal incomes.

So, despite the fact that there need not necessarily be any inflationary consequences of relative price changes, in today's economies there is often just such an outcome. The mere churning of relative prices generates an upward drift of the general price level in any situation where few prices ever fall. Inflation is then the only way for shifts in relative prices to work themselves into the price structure. The hypothetical example of the two-commodity economy illustrates the situation exactly: if A's price can't fall, then B's must rise further than otherwise in order to reach a level where its price, reflecting real external factors of supply and demand relative to A, is three times that of A. And this will lead to general inflation if the money supply is expanded as a result.

Though they obviously play an important role in the current inflationary process, it would be inaccurate to say that relative price changes are the *cause* of inflation. A whole set of additional conditions must be in effect for relative price changes to be incorporated into the price structure via the inflationary escape valve.

Economists and others disagree about how much governmental involvement in the economy is desirable, or what form that involvement should take. But there is little disagreement that it is the presence of governments in the workings of postwar economies that has allowed a period of sustained inflation. Very simply, it has been government

policy everywhere to keep the economy continually expanding and to prevent recessions, high unemployment, and deflation. And for much of the postwar era, the policy has been successful. Only during the seventies did one of its side effects become unmistakably clear, namely, a chronic inflationary bias. As Robert Solow of the Massachusetts Institute of Technology puts it, "We have inflation because we're able to avoid deflation." His phrase "the upward bias of sticky down" captures the essence of the situation: the price level is flexible upwards, but inflexible (or "sticky") on the down side. This results in an upward drift in the general price level, that is, inflation.[16]

The circumstances that together create the current downward inflexibility of the price level have been described by Robert Heilbroner. He characterizes government involvement in the economy as a "buffer":

> It is no longer taken for granted that what goes up must come down; on the contrary, what goes up will probably continue to go up indefinitely. With such attitudes, corporations do not feel a need to furl sails rapidly the instant a recession blows up, nor do households feel a need to practice thrift, even if their incomes fall. Unions are emboldened to ask for aggressive wage settlements, because they know their members have the backstop of unemployment compensation behind them. The unemployed do not feel the necessity of taking any kind of work, because the welfare system permits individuals to refuse work they do not like. And so, in one way and another, with results that some people celebrate and some deplore, government has made everyone more secure, and this generalized state of security helps breed attitudes and behavior that push up demand and jack up costs.[17]

In short, since the thirties many governments have created floors under their economies to support the ratchet-like upwards movement of incomes and prices. Occasionally, governments even step in directly to prevent corporate bankruptcies, as in the cases of Lockheed and Chrysler in the United States and British Leyland in the United Kingdom.[18]

The principal tools used by governments to maintain this "floor" beneath their economies have been monetary and fiscal policies. The economic policy story of the postwar years in many of the developed countries has been one of attempting to "fine tune" national economies by making adjustments in aggregate demand through the mechanisms of tax reductions, deficit spending, shifts in interest rates and the money supply, and so forth. The macroeconomic theory of Keynesian economics that has guided policymakers in making these adjustments gradually came to enjoy the support of most economists during this period.

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Now, however, with the onset of chronic global inflation, other voices are in the ascendency. The monetarists offer an explanation of the current inflation that they claim makes all other considerations unnecessary. They say that higher prices are the inevitable result of increases in the supply of money that exceed increases in economic productivity. The result, as the classic dictum says, is too much money chasing too few goods.

It is undeniably true that other inflationary forces would be snuffed out if they were not given room to operate by increases in the money supply, and that, furthermore, governments or central banks generally do have control over the supply of money. The problem with using the monetary mechanism as the prime dampener of inflationary pressures has been that the economy as a whole suffers various degrees of suffocation in the process. The housing market is one of the first to feel the pinch, as mortgage money becomes scarce and expensive. More generally, as demand falls, layoffs occur. Unemployment rises. Estimates vary somewhat, but the cost of reducing the rate of inflation in the United States by 1 percent is in the range of $60 to $75 billion in lost production per year. This translates into an extra 1 percent of unemployment.[19]

This is precisely what governments and their citizens are no longer willing to endure. Political forces have repeatedly proved strong enough to prevent anything more than token and sporadic attempts to cure inflation by bleeding the money supply. Concerns over the social equity of the resulting deflation have invariably curtailed the use of this approach. The prevailing view has been that if this is the only cure, then it is better to live with the disease.

"The problem with using the monetary mechanism as the prime dampener of inflationary pressures has been that the economy suffers various degrees of suffocation in the process."

Recently, stringent new measures have been taken by the central banks in both the United Kingdom and the United States to limit the money supply. Recessions are expected as a result of this policy, but it is too early to tell how large these induced economic slumps will be. Unlike West Germany and Switzerland, the UK and the US cannot absorb the resulting unemployment by exporting foreign migrant workers—on the contrary, domestic unemployment will certainly increase as recession deepens. The real burden of this form of "cure" falls largely on the poorest, most vulnerable segments of society, in contrast to the damage of inflation itself, which, spread out over the entire society, functions as a kind of tax. As the inequitable damages of these policy-induced recessions become more apparent, social unrest is likely to mount and there will be growing political pressure to stop making one segment of society bear the brunt of the side effects of this monetary cure.

If the floors under modern national economies are here to stay and if monetary instruments prove too crude—squeezing too much life out of economies along with the inflation—then where is there to turn for relief? Two possibilities remain: ceilings on prices and incomes can be erected above the market mechanism, so "sticky down" is balanced by "bumpy up," and myriad individual efforts can be made to prevent or reduce increases in the prices of specific goods and services. Although a specific price increase does not necessarily cause inflation, it would surely be easier to control if individual prices rose more slowly.

Many economists have concluded that a ceiling on incomes and prices is indeed necessary if inflation is to be contained, and there are numerous schemes for the design of the "ceiling."[20] But just as the inflationary consequences of the "floor" must be weighed against its social benefits, so, too, must the inflation-preventing benefits of the ceiling be weighed against its costs.

Apart from wartime emergencies, the modern capitalist economies have been reluctant to accept wage and price controls, which are felt on the one hand to hobble the entrepreneurial spirit of free enterprise, and on the other hand to freeze existing inequities in prices and compensation into the market structure. At the least, a whole

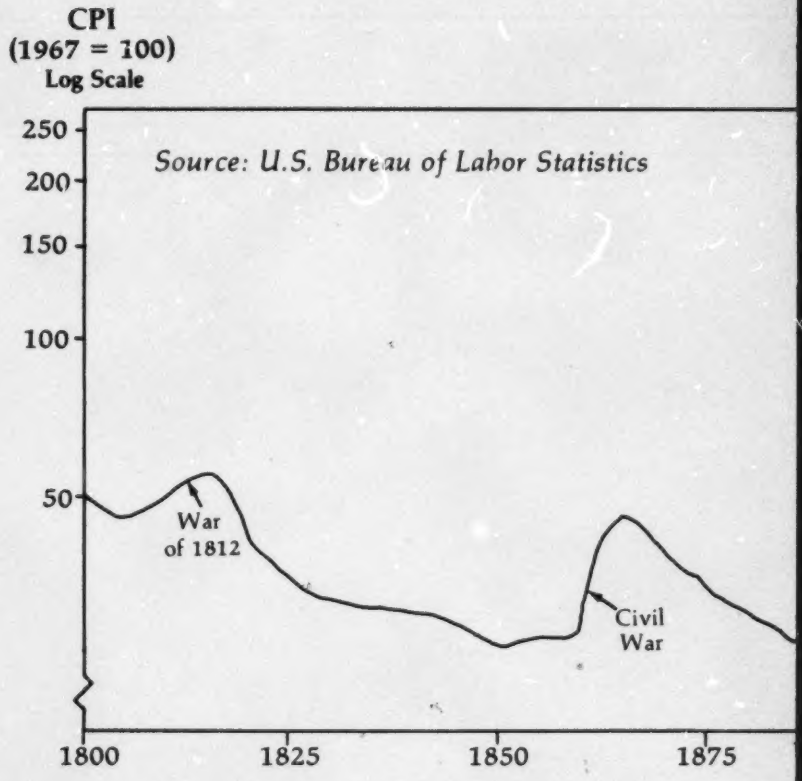
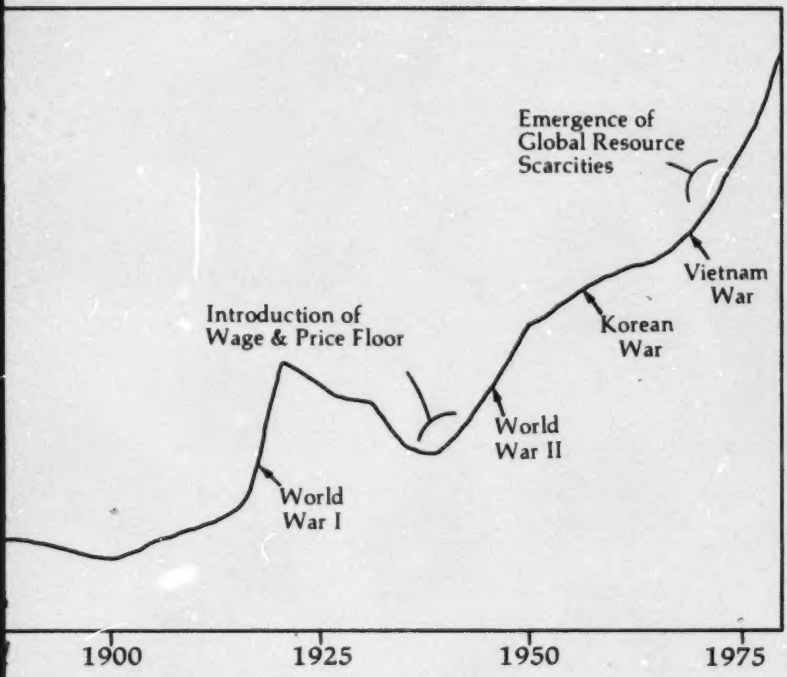


Figure 1: U.S. Consume



Price Index, 1800-1979

new layer of bureaucratic controls would have to be erected and maintained, in tandem with those that constitute the economic floor.

26 The implementation of price and wage controls could also be difficult. An apocryphal warning, drawn from the German experience with price controls during the 1923 hyperinflation, illustrates the problem. When the legal price ceiling for a loaf of bread was 100 marks, but the actual cost of producing it was 10,000 marks, an ingenious baker sold the loaf at the legal price with the stipulation that the shopper also purchase his dog, which was available that day for a mere 10,000 marks. The dog, released by its new owner, would then run home to the baker for resale, at a higher price, along with the next loaf of bread. People's ingenuity in circumventing price controls knows no bounds.

At the present time, as the debate grows, there is little sign in most countries of the necessary legislative support for wage and price controls or for any of the variants of "incomes policy." Norway and Denmark, however, have already placed embargoes on further price and salary changes, and polls indicate that a majority of the American people favor similar controls.[21]

Yet even if each sovereign economy has a system of domestic income and price controls in place, there would still be the problem of adjusting to price changes on imported goods. The maintenance of domestic price level stability in the face of an increase in the price of imported oil, for example, would require a national "price stabilization board" to order compensating lower prices (and thus wages) in the other sectors of the economy. The extreme political difficulty, in any country, of taking such actions should be apparent. The awkward truth about inflation is once again revealed: Inflation is the only politically feasible way that democratic governments have found for allocating increased real costs or, what is the equivalent, for reducing people's standards of living or at least retarding improvements in them. Its silent, impersonal, unconscious workings allow people to disavow responsibility for the whole, while continuing to pursue their own personal well-being.

It may be that, as the menace of inflation grows, various versions and combinations of the traditional cures for inflation will be tried

and will even meet with some success. But because the world is composed of sovereign economies that engage in international trade, there remains the certainty of economic shocks arriving on the price tags of imported goods. Oil is the prime example of the past decade. This certainty, along with the "upward bias of sticky down" that myriad individual price increases encounter, turns our attention to the new sources of today's higher prices.

The prevalence of medical metaphors in today's world, coupled with deep habits of language, invariably provoke the question "What is the cure for inflation?" Given the prevailing paradigm in the medical sciences, we even unconsciously seek the economic analogy of the modern miracle drug, that is, a cure that is painless, direct, cheap, and preferably permanent. In short, we seek "the magic bullet" that will stop inflation dead in its tracks.[22]

But if there is no simple cause, is there likely to be a simple cure? Inflation is not so much a disease as it is a symptom—a symptom of a condition that arises from a whole constellation of circumstances. Like shortness of breath in the course of normal daily activities, it is a signal to us to change our pattern of living: whereas either suffocation or an oxygen mask would eliminate the symptom, neither would begin to deal with the real underlying conditions.

New Sources of Higher Prices

Away from the panorama of macroeconomics, in the nitty-gritty of the marketplace, prices are set and raised. The marketplace is therefore the first line of defense against inflation. The deeper defenses provided by monetary and fiscal policy might be more effective if less were required of them. An easing of the pressures towards higher prices at their source must therefore be a vital part of any balanced defense against inflation.

If demand for a commodity increases, or if its supply shrinks, that commodity becomes more valuable and its price rises. Many commodities around the world seem to be under both these pressures at the same time: demand is rising as population increases and as existing

populations become more affluent; supplies are falling, or failing to keep abreast of rising demand, as resources are depleted or become harder to obtain. Signals of rising real costs and of the greater effort required to maintain a given living standard are arriving from every corner of the earth.

- In parts of India, it now takes a person two days to gather enough wood to meet the energy needs of a household for one week.
- In 1970, the Soviet Union got 10 percent of its oil from Siberia and 90 percent from the mild and accessible regions of the south and west. In 1980, 50 percent of the oil will come from Siberia, where the adverse climate and the distance from industrial centers doubles the cost of the oil.
- Since 1950, the harvested area in Nigeria has multiplied as marginal land has been brought under cultivation and fallow cycles have been shortened. Land that used to lie fallow for up to 15 years between planting is now replanted after only five years—too short a time for its fertility to be fully restored. Together, these two trends have led to a fall in the average productivity of land that has overriden the combined contribution of all advances in agricultural technology.
- Despite huge increases in investment in the oceanic fishing fleet since 1970, the world fish catch has leveled off. The catch per dollar invested has fallen sharply.[23]

In addition to finding it more difficult and costly to obtain energy and food, as in the instances cited here, it is now becoming harder and more expensive to extract ores, to obtain enough fresh water, and to control environmental pollution.

What meaning do these signals hold for humanity? The nineteenth century economist David Ricardo managed to decipher Nature's message on much scantier evidence. Ricardo dealt primarily with the application of labor to land. He saw that after a certain point an increase in the number of people farming a fixed acreage would not proportionally raise its yield, and he referred to this as the law of diminishing returns.[24] Each of these signals is an illustration of the

"Signals of rising real costs and of the greater effort required to maintain a given living standard are arriving from every corner of the earth."

diminishing marginal returns that invariably set in as the earth's natural limits are approached.

The world depends for its food supply on the production of its croplands, its grasslands, and its fisheries. Most of the world's arable cropland is already being cultivated. In Canada, agricultural productivity is being reduced as marginal land is substituted for prime land that has been lost to urbanization. An estimated 233 hectares of marginal land is needed to replace 100 hectares of prime land.[25] The net effect of farming this lower quality land is a reduction in the average fertility, and hence a loss of agricultural productivity.

The dramatic increases in crop yields realized since the sixties through irrigation, chemical fertilizers, insecticides, and improved seeds are likewise now approaching limits in the cases where the technologies have been fully applied. Further extension and intensification of agriculture along these lines will be able to keep up with population growth only at a disproportionately greater cost. World grain output per person has, in the seventies, failed to show the increases of the two previous decades. Although this is not the only cause of increased grain prices, a tightening supply combined with increasing demand is certainly a contributing factor.[26]

The world's grasslands are also hard pressed. Overgrazing is widespread in Africa, the Middle East, the Indian subcontinent, and Central and North America. Like cereals, world production of beef per capita may also have peaked during the seventies. The same trend is apparent in the global per capita fish catch.[27] When too many fish are harvested, the remaining stock may be unable to reproduce itself: overfishing can lead to negative returns.

As the number of people grows and the earth's population density increases, more pressure is placed on these biological systems that undergird the economy. Global demand finally approaches the level not just of current supply, which has happened periodically throughout history, but of optimum feasible supply, which has never occurred before at the global level. The implication for prices is awesome. Whereas in the past supplies could usually be increased to match increased demand—by bringing more land under the plow, by adding fertilizer or water to raise yields, by increasing the size of the

herd, or by expanding the fishing fleet—in the future this will prove much harder. Marginal costs will soar, and so will the cost of food. The most promising source of future productivity growth lies in a quite different direction, namely, redistribution of the ownership of certain lands. The fundamental and sensitive political issues involved in land reform will have to be confronted if inflation in food prices is to be controlled.

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Food prices will rise not merely because food production has to move increasingly to marginal croplands, grasslands, and fisheries. Another crucial determinant of food prices is the cost of energy. In North America, during the half-century between 1920 and 1970, the declining real price of energy induced substitutions of yield-increasing and yield-protecting petrochemical technology. The huge increases in the relative price of energy during the seventies suggests that continued rapid productivity growth in North American agriculture is, for the present, unlikely. Vernon Ruttan, of the Department of Agricultural and Applied Economics of the University of Minnesota, sees the next several decades as paralleling the lag in productivity in U.S. agriculture between 1895, when the land frontier closed, and 1925, when a new land-saving biological and chemical technology began to be applied.[28]

Similarly, the eighties and nineties will be devoted to the search for new energy-saving technologies. In the past, cheap energy has supported cheap food: now expensive energy is driving up food prices. The future may lead full circle, to the use of land and foodstuffs to produce energy, as in the production of alcohol from sugarcane and grains. A change in the relationship between the food and energy sectors, from one of support to one of competition, would have serious implications for food prices on the world market.[29]

Fred Sanderson, an agricultural specialist with the Brookings Institution, estimates that recent increases in the costs of fuel and fertilizer will immediately force up grain production costs in India from the current $140 a ton to $155. He notes that "with continuing increases in population and the lack of new land for cultivation, Asian grain countries have to use more and more irrigation water and fertilizers to increase yields. With both of these costing more and more, it will be much harder for them to continue doing so."[30]

The clearest signal during the seventies of the increasing stress on the global economic system came with the dramatic jump in the price of petroleum, which increased close to tenfold over the decade. Just as with cereals, meat, and fish, the rise in oil production, which had outpaced the increase in human numbers during the fifties and sixties, was overtaken by population growth during the seventies. Global per capita production of oil has leveled off and now appears to be headed downwards.[31]

Herein lies the ultimate source of the oil price increase, rather than in Middle Eastern wars or the greed or monopolistic power of OPEC. As year after year the world demand for oil grew, bringing the exhaustibility of nonrenewable oil reserves into ever sharper focus, the OPEC nations reacted as sellers invariably do when demand outruns supply: they raised prices. U.S. Under-Secretary of State for Economic Affairs Richard N. Cooper recently made the point that the OPEC cartel has lost control over the price of oil, which was in fact driven throughout 1979 by the fundamental market force of excessive demand scrambling to capture limited supplies. And in December 1979, Saudi Arabia's oil minister, Sheik Yamani, agreed: "We have lost control over petroleum prices." This situation translates directly into reductions in real incomes in oil-consuming countries. Cooper adds: "While the increase in oil prices will register in the cost of living, we cannot as a nation restore our real incomes through higher wages. Attempts to do so will worsen inflation. . ."[32]

Oil is certainly not the only source of energy, nor even the main one for a great many people. For fully one-third of humanity, firewood is the principal source of fuel.[33] This energy source is also showing the effects of shrinking supply and swelling demand. A person who must walk five hours to collect firewood that used to be available just outside the village experiences rising "costs" in terms of greater physical effort. As the cost of obtaining firewood increases in Third World villages, people begin using animal dung as fuel instead of as fertilizer, thus reducing soil fertility and, ultimately, increasing the price of food. Again, a cost increase in energy translates into a price rise in food.

This and other uses of the world's forests, such as lumber for housing, have resulted in a gradual net loss of forested land. World wood

production per capita peaked in the mid-sixties and has fallen steadily thereafter. Since then, the prices of the principal forest products—lumber, newsprint, and firewood—have doubled and in some cases tripled. The tripling of lumber prices since 1967 in the United States has contributed significantly to the soaring cost of housing: the average price of a new house increased from about $30,000 to almost $70,000 during the seventies.[34] Although both cyclical fluctuations in demand and rising energy prices and labor costs account for part of these increases, the underlying market relationship between the global level of demand and the sustainable yield of readily accessible forests is clearly a factor of fundamental importance.

Per capita analyses of this sort of course conceal the great disparities in the consumption levels of food and energy that persist in different parts of the globe. Clearly, if the developed countries consumed less, the surpluses created by such conservation would represent reduced demand in the rich countries as well as provide an increased supply in the poor countries, thus generating a considerable counterpressure to global inflation.

Everywhere one turns, limits are being encountered and the effects are being compounded. The biological and physical systems that underlie all economic activity and that have generally supported it unstintingly in the past were reeling during the seventies under the impact of excessive demand. During the past decade or so, world per capita production of wood, petroleum, fish, cereals, and most meats all appear to have peaked. And during this period the prices of these same commodities soared and inflation became a central feature of global economic life. The law of diminishing returns is "ruling" in an increasing number of economic settings.

Although monetary factors are also involved in the current inflation, it seems clear that the world is entering a new era of scarcity. For the first time, almost all the factors are lining up on one side—*against* lower prices. Whereas before, the sociopolitical influences that tended to increase prices might be offset by increased supplies or by productivity gains, in the future no such good fortune can be expected. Resource limitations and diminishing returns, which have their origins in the fragile and finite nature of the planet, are henceforth more apt to conspire with human failings on the side of higher prices. In

"It would be appropriate for political leaders the world over to appoint ecologists to their councils of economic advisers."

recognition of the dependence of economic activity on the state of the biological and physical environment, it would be appropriate for political leaders the world over to appoint ecologists to their councils of economic advisers.

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A recent study has suggested that there may be a lesson for the contemporary world in the mysterious sudden collapse of the Mayan civilization, which flourished in Central America until around 800 A.D. Evidence from one of the Mayan capitals, in Guatemala, indicates the fall may have been precipitated by a squeeze between population and the notoriously fragile tropical environment. Over a 100-year period the population dropped back to what it had been almost 2,000 years before; whole areas have remained virtually uninhabitated until very recently. Some of the environmental changes have been as long lasting as the decline in the population. In the words of one of the researchers who studied the Mayans: "The accumulating evidence suggests they had become a complex society with advanced agriculture, a managerial elite class and all the stresses, strains and conflicts that go with such size and complexity. Then their way of life collapsed, leaving a severely damaged environment and a cultural vacuum that persisted for many centuries."[35] As the investigation into the collapse of the Mayan civilization continues, it seems likely that the researchers will also find evidence of runaway inflation.

Steps Toward a Noninflationary World Economy

Until fairly recently, inflation was normally the product of the mismanagement of fiscal or monetary policy, and an adequate response lay in adjusting these policies. The current U.S. inflation, for example, got its first boost from the government's failure to pay for the Vietnam War by raising taxes during the mid-sixties. However, more than monetary and fiscal influences are now at work.

The current global inflation is viewed here as a sign that present economic practice is not viable. While the ships of state float ever higher on the inflationary sea, they are leaking. Is there a sustainable way to organize economic life? If so, can steps be identified that would begin to cope with the nonmonetary sources of inflationary pressure? The purpose of sketching an answer to this question is not

to offer one more portrait of a utopian society, but rather to encourage an examination of the public choices that confront society.

The "solution" is not a single answer but rather a many-faceted transformation. The main features of such a transformation have been delineated by many writers.[36] On the issue of global inflation, the discussion centers most naturally on considerations of supply and demand. Most of the ways in which supply might be increased or demand reduced will involve politics—the human factor in inflation and that which is always the least tractable.

Economic thought evolved in the infinitely rich setting of material civilization and commerce, and as such was comprehensive and holistic.[37] In fact, the emerging body of knowledge went by the name "political economy," in explicit recognition of the intrinsically political nature of economic affairs.

Why did economic policy subsequently move away from its groundings in the biological, physical, and sociopolitical environment, and increasingly neglect these constraints on economic activity? For centuries the environment did not seem to limit economic development and growth. As diminishing returns set in—whether in mining or agriculture, or in the production of energy—science and technology usually came to the rescue. From the beginning of the twentieth century until about 1970, grain and ore prices actually fell as agricultural and mining technologies advanced and as energy became ever cheaper and more abundant. Indeed, as science and technology progressed many came to believe that the point where returns actually begin to diminish could be postponed indefinitely.

Now there are signs that even research and development itself, as an activity, is not exempt from the law of diminishing returns.[38] Just as the productivity per farmer declines when too many farmers work on a given piece of land, so do diminished marginal returns result when too many scientists work on a given problem. For example, some observers feel that cancer research has now reached this point. This is not to say that there will not continue to be great, and even revolutionary, scientific advances. Microelectronics and genetic engineering are just two areas that hold promise for raising productivity and reducing prices. However, scientific advances in the near future

"Just as environmental policy has been introduced into economic planning, so, too, must population policy be integrated into economic policy."

will not be made as frequently or as cheaply as in the past. The known conceptual ground has been worked over pretty thoroughly and subsequent explorers will find rich research veins less exposed and harder to exploit.

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Whereas in the past, the emphasis has been on economic growth and on the stimulation of demand and the expansion of supply, the future will almost certainly require slowing growth in demand. There are two fundamental shifts that could each contribute greatly to curbing demand and thereby put a lid on inflationary pressure. The first, and most obvious, is population stabilization. In a situation where the entire world draws on the same supplies—food from North America, oil from the Middle East—an increase in demand from any quarter reduces the supply for everyone. A worldwide effort to stabilize population is clearly essential, and more countries are now committing themselves to this goal. China, with one-fourth of the world's population, has recently announced a program to bring population growth to an absolute halt in the shortest possible time. The leadership aims to achieve this by offering handsome financial incentives to couples who have only one child and by imposing severe financial penalties on those who have more than two children.[39]

China is the first society to publicly recognize and discuss the advantages of a declining population, that is, of negative growth. It is equally important that countries as different as India, Brazil, and the United States stabilize their populations. Even if a country can provide for its own citizens, an expansion in its numbers draws resources away from countries where there is less than enough to go around. Population policy and family planning are too important to be left to a group of demographers and doctors buried in national health ministries. Just as environmental policy has been introduced into economic planning, so, too, must population policy be integrated into economic policy.

Whereas population stabilization is a problem primarily in the developing world, the other inflation-combating change is one that mainly concerns the developed economies. It is a shift away from consumerism, away from the materialistic orientation that has become the organizing focus of affluent economic systems. In a 1977 interview with columnist Joseph Kraft, Prime Minister Trudeau of Canada

speculated on inflation. "Inflation," he said, "has not found its Keynes. I personally think the Keynes of inflation will not be an economist" but will instead "be a political, philosophical or moral leader inspiring people to do without the excess consumption so prominent in the developed countries."[40]

To the extent that such changes are required, there is some evidence—perhaps somewhat fanciful—that the public might be willing to accept them. A Harris Poll in 1975 revealed that "when the alternative is posed between changing our lifestyles to have less consumption of physical goods, on the one hand, and enduring risks of continuing inflation and unemployment on the other, by 77 percent to 8 percent, the American people opt for a change in lifestyle." A 1977 poll found that 76 percent of Americans favored "learning to get our pleasure out of non-material experiences" rather than "satisfying our needs for more goods and services."[41]

There are enormous possibilities for reducing demand through voluntary shifts in values towards simpler living. Some, recognizing the truth in the old adage "the best things in life are free," will find their satisfaction in places other than auto showrooms, department stores, and remote vacation lands. Things that are free, in the sense of the adage, remain forever immune to inflation.

The advertising industry presently devotes a great deal of energy and intelligence to creating and sustaining human wants. If, with government support, its attention could be turned away from stimulating demand to reducing it—by educating people in the avoidance of waste and the practice of frugality—the industry could assume a role of leadership in the transition to a sustainable society and the fight against inflation.[42]

Nothing has contributed more to global inflation than the recognition that the world's supply of oil will be exhausted within a few generations at the present rate of consumption. The search is on for renewable sources of energy that could fundamentally increase the overall energy supply and eventually bring price rises to a stop.

For the transition from exhaustible to renewable energy sources, conservation is the password. Considerations of conservation are

certain to dominate society's thinking over the decades immediately ahead, as they always have dominated the lives of the Eskimo people and others who have known environments of scarcity. The Eskimo's scrupulous use of every scrap of a seal or walrus in the face of absolute scarcity might serve as a symbol for all in the years ahead. Conspicuous and excessive consumption of energy and food should be discouraged by law and by social pressure, thus reducing demand. The conservation ethic should reverberate through every aspect of society, affecting transportation, architectural design, engine efficiency, packaging, even the foods people eat. In a world of over four billion people—where excessive pressures on resources can be seen on every hand—the planned obsolescence of many consumer goods, the annual model changes in the automobile industry, the constant fashion changes in clothing, and so forth are not consistent with the effective management of inflation. The reuse and recycling of water, metals, paper, and glass must become the rule, not the exception.[43]

Thousands of these such changes, all of which work to reduce demand and to extend supply, will be required to bring inflation under control. The ancient parable of the Chinese farmers is apt. Two farmers had adjoining properties. One's flourished; the other's was barren. The man with the unproductive farm went to his neighbor and asked him the secret to his success. He was told, "There is no secret; there are 100 secrets. And they must all be applied at once."

In addition to this unprecedented shift from the Keynesian approach of stimulating demand to curbing it, there are some other things that could be done to control inflation. They include changes in working conditions to boost productivity, the lifting of protectionist barriers to international trade, land reform in some developing areas of the world, and demilitarization. Although each of these measures, and others besides, merit full treatment in their own right, their relationship to controlling inflation can only be sketched out here.

Phenomenal increases in productivity in all areas of economic life have in the past helped to hold prices down. The rule of thumb is that a 1 percent increase in economic productivity yields a 1 percent decrease in inflation. If we cannot now rely so heavily on technological advances for productivity boosts in the face of environmental constraints, it is natural to turn for help to the human component of

production. Are there possibilities for realizing productivity gains through redesign of the working environment and modifications in traditional management methods? A recent study finds that "worker participation in management and ownership can improve the quality of work life, raise flagging productivity, and help society cope with today's inflation and unemployment." Japan and some European countries have taken major steps towards worker participation in management and have reaped considerable productivity gains. The United States is just beginning to explore these possibilities. Worker participation in management and ownership should lead to wage settlements that dampen the cost-push inflationary spiral, especially in the context of tax proposals now under discussion that would penalize inflationary income settlements.[44] Over the long run, the only societies with sustainable economies are apt to be either fully participatory or utterly authoritarian.

One of the most notable shifts in the economic life of industrial countries has been the movement of an ever larger fraction of work forces into the provision of services as opposed to the production of goods. And the costs of services have been growing faster than those in other sectors of the economy. For example, between 1962 and 1972, the CPI in the United States rose by 38 percent; in this time, the price index of manufactured goods rose by only 27 percent, whereas the price index of services rose by 54 percent.[45] Since productivity in the service sector has grown more slowly than in the industrial or agricultural sectors but wages have tended to stay abreast of levels established by the industrial unions, the shift to services that has characterized postindustrial societies has inflationary ramifications.

The size of the service sector—over 60 percent of the U.S. labor force—reflects excessive dependence on professional services, buttressed by legal barriers to self-help that prevent people from doing for themselves many things they once did. People's dependence on professional "experts," whether medical, educational, legal, or mechanical, creates the conditions for their subsequent exploitation by excessive charges. The growing do-it-yourself ethic will create counter-inflationary pressures as it gathers steam. Lessening our dependence on "experts" may well be as important in countering inflation as lessening our dependence on foreign oil.

"Over the long run, the only societies with sustainable economies are apt to be either fully participatory or utterly authoritarian."

A political source of inflation in both developed and developing economies is widespread protectionism.[46] Tariff barriers and import quotas on products from other countries serve to raise domestic prices by denying cheaper goods access to the market, all in the name of preserving domestic jobs. Not only does this contribute to domestic inflation, it also denies developing countries the opportunity to earn the foreign exchange they need for development. Since 1976, there has been a significant increase in protectionism in the industrial nations, reflecting the attempts of organized interest groups to preserve jobs in weak domestic industries. Clearly some government role in what is ultimately an economy-wide adjustment is appropriate in order to cushion the impact of structural adjustments on particular groups. But protectionism is not the answer. It is inefficient and counterproductive because it blocks a better international division of labor, leading to higher prices in the protected countries and to a net loss of jobs in the world as a whole. Protectionism functions internationally much as industry regulation functions nationally—by reducing opportunities for competition, it supports higher prices.

Robert McNamara, President of the World Bank, points out that protectionist measures imposed by the United States between 1975 and 1977 cost consumers an additional $660 million for sugar, $1,250 million for steel, $400 million to $800 million for meat, $500 million for television sets, and $1,200 million for footwear. He believes that "the present unhappy combination of slow growth, unemployment, and rampant inflation [offers] an opportunity . . . to restructure the production patterns in the developed and developing countries, and to establish an international environment which encourages . . . more equitable growth, at higher levels of employment." A recent study pointed out that over one billion new jobs must be created in the world by the year 2000 to provide jobs for new workers entering the labor market and for the unemployed.[47] Removal of protectionist barriers to trade between nations is a vital step toward meeting this global need and simultaneously combating global inflation.

Another especially difficult political step necessary to the alleviation of global inflation is land reform. As long as a farmer works land owned by a landlord who may claim any profits simply by raising the rent, incentives for making fundamental improvements or for cultivating more intensely are nil. The increased food production that

could support development and reduce infant mortality rates, thereby giving family planning a chance, does not occur. The entire system, by discouraging development beyond the subsistence level, curtails supplies while indirectly increasing demand by fostering continued population growth. All these factors conspire to maintain inflationary pressures. Land reform remains at the top of the agenda for much of humanity if the world is ever to escape from life-threatening inflation.[48]

By far the most challenging political barrier to a noninflationary world economy is the global level of military spending, which equals approximately $500 billion each year, a sum that exceeds the income of the poorest one-half of humanity. Furthermore, about one-quarter of the global research and development budget is spent annually on the advancement of military technology.[49] Such spending has long been recognized as wasteful and inflationary. The drain on the energies of youth and on the brain power of the world may only be guessed at. The cost of maintaining a state of perpetual war readiness —armed to the teeth, with millions serving in the armed forces—is one that societies may not be able to absorb much longer without economic and social consequences that rival in seriousness those of wars themselves. The relationship between wars and inflation discussed earlier supports the argument that there could be no greater contribution to the realization of a sustainable, noninflationary world order than the reduction and elimination of this colossal waste of material and human resources.

These strategies for combating inflation raise a great many questions, and must leave most of them unanswered. The purpose here has been simply to sketch a general picture with a broad brush, not to undertake the more demanding task of designing policies and institutions that would bring about the transition. However, there is one question pertaining to such a transition that a discussion of inflation cannot ignore. Namely, won't the transition to a noninflationary society itself be inflationary? In particular, aren't conservation measures, recycling, environmental protection, renewable energy sources, and so forth initially more expensive than current practices? The answer is often yes. For example, the introduction of measures necessary to control the erosion of soils in the United States would involve half of all U.S. cropland and result in a one-time 5 to 8 percent increase in food

"The most challenging political barrier to a noninflationary world economy is the global level of military spending, which exceeds the income of the poorest one-half of humanity."

production costs.[50] But the alternative is unmanageable long-term rises in food costs as the cropland base deteriorates. In general, if an alternative to present practice were immediately cheaper, or didn't injure some party with a vested interest in the status quo, it would have already been adopted.

So the period of transition will be one of some greater immediate costs. Yet at the end of that period the world will be on a new plateau that will be insulated from the unrelenting current sources of inflationary pressure. The extra costs associated with getting there are small compared with the costs that will accumulate ever more rapidly in the decades ahead if the world persists toward the goal of maximizing growth.

Economists cannot be expected to solve the problem of inflation alone. Peter Jenkins of *The Guardian* points out that the cry for a "new Keynes" represents the desire for "some new single principle which will painlessly restore prosperity to the world. What is more urgent and more realistic . . . is to hope for some revival of belief in political action. One of Keynes' greatest contributions to his age was his profoundly political belief that problems could be solved."[51]

Although insight into the source and nature of the current global inflation is a prerequisite, ultimately inflation is more a political problem than it is an economic one. But it is also unfair to lay the blame exclusively on politicians. Although political leadership is vital, the necessary political steps require major adjustments by virtually all segments of human society. When these steps have been taken, then it will be appropriate to expect economists to provide a fiscal-monetary framework commensurate with a smooth noninflationary functioning of economic life.

In summary, there is another way—a sustainable world society whose central value is to provide equitably for basic human needs in a setting of ecological stability. Although the absence of inflation will surely be one of the characteristics of a sustainable, stable economy, inflation itself is too gross a signal to guide the passage towards such a state. Diminishing returns, however, do provide a useful compass. Every instance of diminishing returns should be read as a guiding sign as well as a warning one, nudging humanity towards a sustain-

able ecological niche on the planet. Rising prices, unwelcome as they are to the individuals paying them, may provide vital course corrections to society as a whole. Diminishing returns are a signal to reconsider the activities whose payoffs are leveling off, and perhaps to
42 modify our goals. They have already inspired worldwide efforts toward family planning, reforestation, curtailment of overfishing, and conservation of water and energy. These efforts foreshadow a transformation in the nature of economic activity, and a new relationship between humanity and the biological and physical systems that are the foundations of all economic life.

Notes

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4. Joseph J. Minarik, "Who Wins, Who Loses from Inflation?," *Challenge*, January/February 1979; Joseph Minarik, *Brookings Bulletin*, Summer 1978. Minarik examines the effects of 2 percent increase in the inflation rate on real incomes and shows that if one considers only pretax money income (ignoring both taxes and capital gains and losses), then very poor households get slightly poorer (by less than one-half of 1 percent), and rich ones get slightly richer (by 0.5 to 1 percent). These effects are both of such small magnitudes as to be of no practical consequence. For incomes from about $8,000 to $40,000 (that is, the great majority of American households), inflation has even smaller effects on real income. These effects are for only the first year of a sustained inflation. After six years, a 2 percent increase in the annual rate of inflation would reduce the pretax income of both the very rich and the very poor, but again it would leave middle-level real incomes essentially unaffected.

If a more comprehensive measure of income is used (one that includes fringe benefits, capital gains or losses, and all taxes), then the effects of a 2 percent increase in the inflation rate on real income remains less than 2 percent for household incomes less than $20,000. But above this level, real income losses typically are more substantial (5 to 15 percent).

Supporting information on the redistributive effects of inflation among income classes is provided by Census Bureau statistics, which report on the share of total pretax income going to the richest 5 percent and the poorest 20 percent of all families and individuals. Data for the decade 1966-76 show only minor fluctuations (around the figures of a 17 percent share to the rich and a 3.8 percent share to the poor).

For comparison, see Hiroshi Niida, "The Redistributional Effects of the Inflationary Process in Japan, 1955-75," *The Review of Income and Wealth*, June 1978; and Gardner Ackley, "The Costs of Inflation," *The American Economic Review*, May 1978.

5. Nancy L. Ross, "Retirement: Battling with Inflation," *Washington Post*, November 11, 1979.

6. A numerical example may bring this problem into focus. Suppose for ease of computation that the family income is $1,000 a year. Assume that the cost of these basic food and shelter needs rises by 20 percent in a given year (from $900 to $1,080), whereas the CPI rises by just 10 percent. Assume further that this 10 percent inflation is offset by a 10 percent hike in income, bringing next year's income to $1,100. Money left over for emergencies after providing for food and shelter thus drops from $100 to $20. If these same conditions hold for a second year, disaster results: food and shelter rise to $1,296, whereas total income rises to only $1,210. People will go hungry. If sickness follows, there is no surplus at all for medical care.

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8. "Trees Go, *Kalabule* Stays," *The Economist*, September 8, 1979; *Monthly Bulletin of Statistics*, United Nations, New York, July 1979.

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15. Lester C. Thurow, "Inflation: We're Fighting Yesterday's War," *New York Times*, October 21, 1979.

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17. Robert L. Heilbroner, "Inflation," *The New Yorker*, October 8, 1979.

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21. H. Peter Dreyer, "View from Europe: Inflation Rises; Wage Price Stops Beckon," *Journal of Commerce*, November 13, 1979; "Poll Finds Public Suggests Variety of Moves in Fight on Inflation," *New York Times*, November 8, 1979.

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